OK, WE HAVE A TRAUMA TEAM…

NOW WHAT?

Building your Trauma Team

- Identify what standard actions need to be accomplished during your activations
- Identify which role is going to do what, assign in advance
- How many people are to be in the room to meet these action goals?
- Where do they position themselves?

Procedure:

- The charge nurse, House Supervisor or designee will assign roles if possible prior to patient arrival. Roles will be assigned as described below if enough staff is available.
- If staff is not available, roles will be assigned and adapted as indicated by the charge nurse and/or provider.

Guidelines for Roles and Responsibilities

Role	Staff/Type	Duties	Position
Airway:	RT/EMT	Ventilation, Assist with intubation Keep patient informed	Head of Trauma bed
C-Spine:	EMT	Maintain c-spine stabilization Alert MD of any change in LOC	Head of Trauma Bed
IV/Procedures:	RN	Insert large bore IV Remove clothing from left side of body, Neuro assessment, assist with procedures Intake/output	On patient LEFT side
Provider Assistant:	RN	Assist with procedures as directed	On patient LEFT side
Vitals & Recorder:	LPN/EMT	Take, monitor and record vitals	On patient LEFT side, toward foot of bed
Scribe:	EMT/LPN	Record case on white board	White board
IV/Med:	RN	Insert large bore IV, Remove clothing from right side of body Attach/observe cardiac monitor Prepare/administer medications Foley as appropriate	On patient RIGHT side On patient RIGHT side On patient RIGHT side
Runner:	Ward Clerk/Secretary/EMT	Retrieve equipment, supplies, Make copies, assist with ER traffic control, Answer/make phone calls	ED Desk
Team Captain	PROVIDER:	Manage/direct team efforts Initiate interventions, care as indicated	Head/foot of patient

TRAUMA TEAM ROLES - Guidelines

Airway: RT/EMT
Ventilation,assist with intubation, keep patient informed

C-Spine: EMT
Alert physician of any change in LOC

Scribe: EMT/LPN
Record case on white board

Patient

IV /Procedures: RN
Insert large bore IV, remove clothing from left side of body, Intake/Output neuro assessment, assist w/procedures PRN

IV/Meds: RN
Insert large bore IV, remove clothing from right side of body,
attach/observe monitor, access crash cart
Prepare/Administer Meds
Foley as appropriate

Provider Assist: RN
Assist with procedures as directed

Runner: EMT/CNA/Secretary
Retrieve equipment/supplies, assist with ER traffic control, answer phone

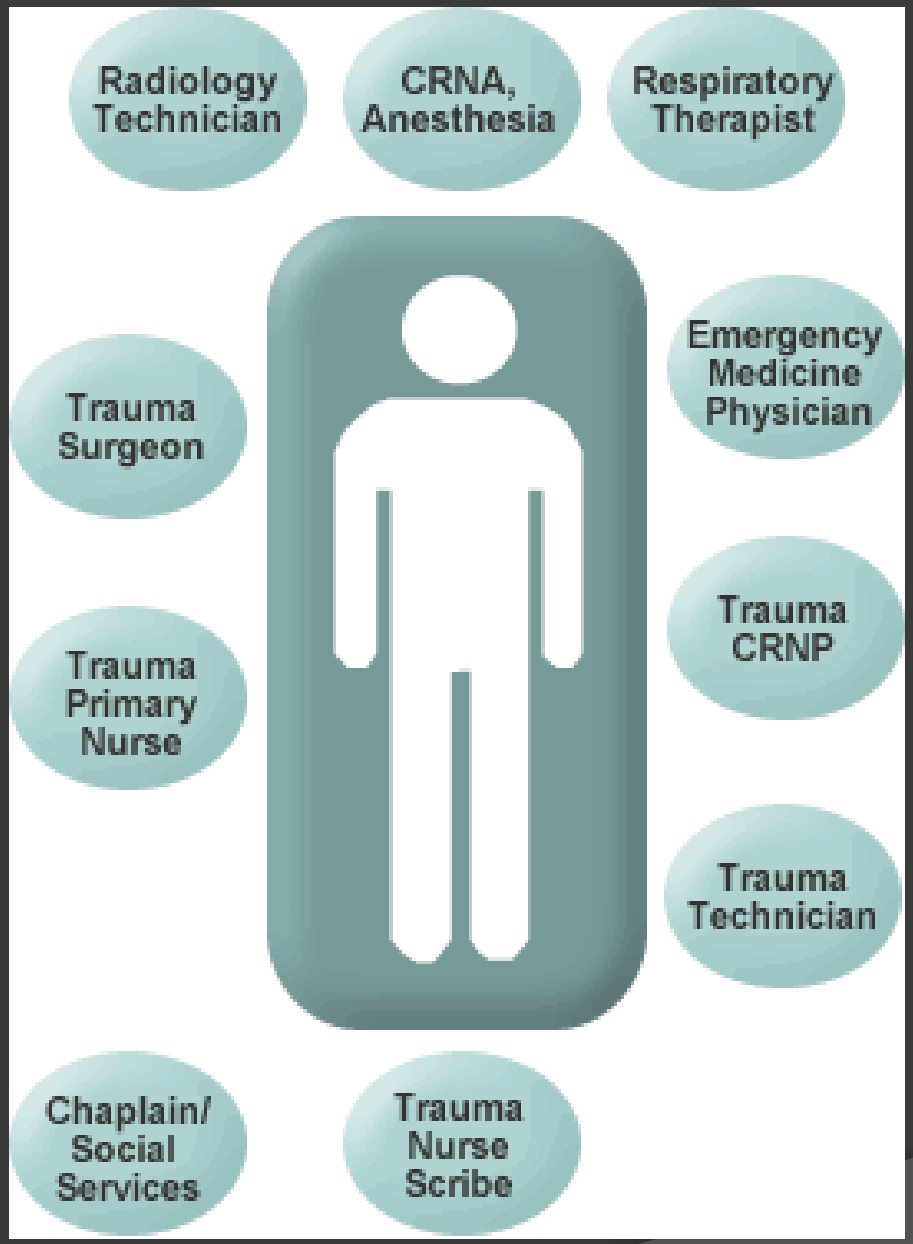
Provider

Vitals & Recorder: LPN/EMT
Takes serial vitals and records on Trauma Form
Other duties as needed

Other Trauma Team Roles

- Lab, XRAY, RT
- Family Support
- Team Support
  - Child Care
- Next shift needs
- Coordinate the rest of the Department & Hospital

The "ideal" Trauma Team



Plenty of help, LOTS of resources and EVERYTHING we need at our fingertips!
We're a well-oiled machine! THIS IS GREAT!!!

Our reality

Trauma and Teams

- Nurses, physicians, and EMS are educated in isolation of one another
  - We all learn the same ABC of ATLS trauma care but, we learn to do so as if we are alone
- Trauma patient care is delivered by a team of these individuals who know what *they* are doing but may not know *what each other* is doing
- "Situational awareness" is especially important in a task-oriented structure
- Models have been developed to teach Teamwork

Trauma Teams

- May not have luxury of working together regularly to achieve team “rhythm”
- May be great differences in ages, experience levels of team members
- Must function effectively from the moment they are formed for effective emergency care
- Important for common understanding as to how to work together from the outset
- Organize, standardize and define the team and their functions

Crew Resource Management

- Originated from NASA WS in 1979
- Procedure/training for flight teams/air safety
- Focus: Communication, Leadership & Decision-making to reduce errors & increase safety
- Adapted to other team models w/complexity issues

TeamSTEPPS

- 2006 DOD & Agency for Healthcare Research & Quality
- Optimize patient outcomes by improving communication & teamwork
- Medical Teamwork system:
  - Leadership
  - Situation Monitoring
  - Mutual Support
  - Communication

"Leadership: The art of getting someone else to do something you want done because he wants to do it" -Dwight D. Eisenhower

Leading the Team

- Leadership matters: effective leadership is a powerful combination of well-executed, effective knowledge , experience, direction and approach
- What does ineffective leadership look like?
- **Leadership**: acquired through technical expertise, experience of directing others effectively to accomplish defined tasks & goals
- **Authority**: assigned based on highest level of technical competence formally or informally
- Optimally a combination of **both**

Team Leadership

- Shared understanding of clear roles & responsibilities
- Sets tone; Decisive, but open to input
- Clinical expertise essential but, for patient safety, communication, cooperation & coordination matter more
- Situational awareness
- Recognizes benefits of using all available resources WELL; “Bringing down the room”

Team Leadership

- Clear, concise, respectful communication
- Pre-brief/post debrief
- Situational awareness
- Recognizes benefits of using all available resources WELL; “Bringing down the room”
- Clear, concise, respectful communication

Effective Team Leaders

- Organize team
- Articulate clear goals
- Make decisions through collective team input
- Empower members to speak up/challenge, when appropriate
- Actively promote & facilitate good teamwork
- Skillful @ conflict resolution

Pre-Brief checklist

- Who's here? Who is assigned to each role?
- All members understand & agree on goals?
- Roles/responsibilities understood?
- What is our plan of care?
- Staff & providers availability throughout care/shift?
- Workload amongst team members?
- Availability of resources?

Debrief Checklist

- Communication clear?
- Roles/responsibilities understood?
- Situational awareness maintained?
- Workload distribution equitable/manageable?
- Task assistance requested or offered?
- Were errors made or avoided? Availability of resources?
- What went well, what should change, what should improve? How will info be shared?
- CISD needed?

Team "Followership"

- Followership matters:

  Accept authority

  WATCH everyone

  LISTEN to what's being communicated

  THINK about what you are doing

  "Don't just do something, stand there"

Team "Followership"

- Situational awareness
- Patient/team safety is paramount
- Clear, concise, respectful communication
- "Read-back" orders given for clarity
- ASK when you aren't sure
- Provide feedback, especially if you think something's not right, clear or correct
- ADAPT

"Attention to detail is one of the most important details" *- Author Unknown*

Situational Awareness

Ability to identify, process and comprehend the critical information elements about what is happening to the team

Knowing what's going on around you

ESSENTIAL in task-oriented environment

Team functions best around shared knowledge base

Situational Awareness

- Be alert for deviations from standard procedures: know your processes/priorities
- Watch for changes in performance of other members
- Provide information in advance, but don’t add to confusion
- Identify problems quickly
- Communicate effectively
- Be aware of what’s going on around you
- Continually assess & reassess the situation
- Ensure all expectations are shared for complete awareness by whole team

Effective Communications

CAN; Reduce errors,

Avoid problems

Enhance team performance

- Respectfully communicate what you mean clearly
- LISTEN and confirm what is being said to you
- If unsure, request repeating of direction
- If disagree, respectfully convey your concern

Remember, it's not WHO is right,

it's WHAT is right

“Culture of Patient Safety”

- Reduce errors
- Improve outcomes
- Increase satisfaction
- Reduce costs

- Does the team communicate and validate communication before and after arrival?

  " We have 20" before arrival (we hope). Here are the team positions and let's quickly make the assignments and get set-up"

  "That was; give a bolus of 500 ml Lactated Ringer's IV, correct?"

  "We don't seem to have anyone who's here yet for airway support. Lee, you provide the airway support, man the suction and ready the intubation equipment, please."

- Can the team adapt to different patient scenarios?

  "She's also 8 months pregnant, let's consider what we need to do differently once we get this bleeding stopped"

- Is everyone on the team in touch with what is going on (SA) and distributing the workload?

  "Amy, go ahead and hook him up to the monitor while I apply the BP cuff and oximetry"

- Is there cross checking of directions and activities as well as performance monitoring?

  "We're having trouble getting that other IV due to her peripheral vasoconstriction, so let's go ahead with that IO placement"

- Are members willing to challenge each other in a reasonable way and do they have conflict resolution skills?

  "Since he seems to be bleeding somewhere, should we perhaps give him more crystalloid and call for type-specific blood instead of starting Dopamine?"

- Can the team prioritize? What are we doing and when?

  “Yes, we’ll need another IV as soon as we secure his airway”

  “We’ll need to splint that leg later. For now, cover the open area with sterile dressings and let’s shoot that portable CXR now”

  “Should we take this patient to CT since he’s unstable? I am uncomfortable moving him and monitoring him over there with a BP this low.”

Working as a Team

- Define roles BEFORE the activation and educate everyone
- Assign roles BEFORE patient arrives
- Use callback verbal system: once asked to do something, team member repeats back to clarify & ensure correct info
- Delegate task to an individual, not the room

Working as a Team

- Don’t forget the priorities
- Challenge culture; anyone on team may validate decisions
- Communicate plan to whole room/team
- Practice on EVERY ED patient

Practice, Practice, Practice

- Practice “Mock” Traumas like Mock Codes
- Develop scenarios around YOUR patient issues (PI)
- Use TEAM format (or develop one that works for you)
- Use staff meetings, trauma sessions, education days or schedule separately: whatever works for your facility

Practice, Practice, Practice

- Focus on organized activities, utilization of equipment/space, team function
- Involve EMS & community partners
- Use scenario to “work it”
- Team building exercise as well

Trauma Team Pitfalls

- Identification of individual members by name, instead of roles
- Not educating everyone IN ADVANCE
- Not defining team members duties once activated Who does what? If you plan to use EMS, define how/when
- No pre/post briefings to gauge performance immediately

Trauma Team Pitfalls

- Expecting improvement without practicing
- Not reviewing activations for Performance Improvement
- Not addressing poor communications as a RISK activity
- Not making timely, necessary changes to improve

"The ratio of We's to I's is the best indicator of the development of a team….

- Lewis B. Ergen

Resources

TeamSTEPPS;

http://teamstepps.ahrq.gov/abouttoolsmaterials.htm

Crew Resource Management;

http://www.crewresourcemanagement.net/

Finding Opportunities

- Use real cases to develop and improve your team
- Identify the opportunities
- Review with team
- Determine objectives
- Drill baby drill!

Management of the Compromised Airway

Objectives

- State the importance of early trauma team activation (TTA)
- Identify the patient in need of emergent adjunct airway
- List the resources needed for emergent airway placement
- Identify why temperature control is important during trauma resuscitation

Prehospital

- 41 y.o. female found on road at 0430 on a cold October morning with facial lacerations and altered LOC
- Scene is 6 minutes from hospital
- BLS service responds within 10 minutes of call
- The patient is spinal immobilization, oxygen applied, & direct pressure to facial laceration
- BP 102/48 HR 132 RR 36 O2 sat 92% on 4L/NC with GCS 14
- Report to ED at 2 minutes from arrival included:
  - Awake and moving all extremities with a strong alcohol odor, moaning w/ large actively bleeding laceration across face

Prehospital

- What was done right?
- What could have been done better?
- What should have been done?

Hospital / Trauma Team

- Trauma Team level II activated by ED charge nurse as the patient rolled in the door at 0505
- ED Physician in-room time 5 minutes after pt arrival
- CT / X-Ray/ Lab all arrive 5 minutes after patient arrival
- Initial vital signs - BP 96/46, HR 136, RR 36, O_2 saturation of 96% on high flow oxygen via NRB

Primary Survey/Resuscitation

- Airway
  - Blood in oral airway
  - Suctioned, identified blood from facial laceration, poor gag when suctioning
- Breathing
  - RR 32-36, breath sounds equal & diminished bilaterally, O_2 sat 96% on NRB, & pale
- Circulation
  - Active bleeding from facial laceration, radial pulses thready w/ rate of 136, cold, diaphoretic, 2 16-gauge IV's started w/ bolus of 1000cc crystalloid solution
- Disability
  - GCS (E-2, V-3, M-5) = 10 Pupils 5mm = & sluggish

Primary Survey Continued

- 0525 After 1000cc crystalloids: BP 98/46 HR 132, RR 34 OS sat 93% on NRB with 2nd litre LR being given (warmed)
- 0535 BP down to 88/48, HR 136, RR 36 & patient vomits blood/food
- 0538 MD orders CT & requests staff prepare for intubation due to pt's declining state. As physician preparing to intubate, mandible fracture identified.
- 0545 RSI initiated. BP 90/48, HR 134, & RR 20-assisted
- Intubation difficult & requires 2 attempts due to blood/vomit
- 0605 PCXR, ETC02, breath sounds confirm ETT placement
- 0615 Foley/NG placed & patient taken to CT with BP 92/50, HR 124, on ventilator

Primary Survey

- What was done right?
- What could have been done better?
- What should have been done?

Compromised Airway

- Signs: inability to clear blood, poor gag, fractured mandible, ALOC
- Equipment needed: airway cart, suction, RSI meds, RT, Vent.
- What are the potential problems with ET intubation? Nasal intubation? What is your plan B?
- At what point can you go to CT?
- What lab tests should be done?
- What stage of shock is this patient in?
- What are we missing?
- Did we call the right level of activation?

Hospital Continued

- Patient taken to CT after oral intubation 60 minutes after arrival with BP 90/50 HR 128, RR16 on vent
- Blood started in CT after 3 litres of fluid given
- TS called after intubation & arrives 40 minutes later
- ABG's 20 minutes after intubation: pH 7.03 PCO2 40 BE -11
- Pt's injuries: mandible fx, Traumatic Brain Injury (TBI), large facial laceration, left clavicle fx
- Patient taken to OR by facial surgeon 120 minutes after arrival

Airway, Airway, Airway

- Early preventable deaths and complications from airway issues result from:
  - Failure to recognize need
  - Inability to establish an airway
  - Not recognizing an incorrectly placed airway
  - Aspiration of gastric contents
  - Equipment failure
  - Improper/poor ventilatory management
  - Displaced previously placed airway

Indications for Definitive Airway

- Unconscious
  - Presence of apnea
  - CHI w/ GCS<8 requiring assisted ventilations
- Severe maxillofacial fractures
- Risk for aspiration
  - Blood
  - Vomit
- Risk for obstruction
  - Neck hematoma
  - Laryngeal or tracheal injury
  - Stridor

Patient Summary

- BLS transport (ALS was available) inadequate
- TTA late which delayed ED physician (CN)
- Patient deteriorated to unstable quickly w/o upgrade to Level I (ED Physician)
- Aspiration pneumonia required antibiotic therapy and increased LOS (earlier intubation may have prevented)
- Blood not started early enough (ED physician-upgrade would have gotten TS in sooner to manage)
- No temperature was taken until arrival to ICU & was 95 degrees & patient developed a mild coagulopathy requiring 6 units PRBC's & 3 units of FFP
  - All IV fluids given to trauma patients should be warmed

Airway Summary

- Airway compromise is likely to occur w/ maxillofacial trauma, neck trauma, and laryngeal/tracheal trauma
- Airway patency and adequacy of ventilation must be performed accurately and quickly
- A definitive airway should be placed early after the patient has been ventilated w/ O2 enriched air to prevent prolonged periods of apnea

ATLS American College of Surgeons

Compromised Ventilation

Objectives

- State the importance of early trauma team activation (TTA)
- Identify the patient in need of emergent chest tube placement (thoracostomy)
- List reasons pre-injury use of Coumadin & Beta-Blockers effect trauma care

Prehospital

- 88 y.o. male, restrained passenger struck on the passenger side at 25 MPH with scene 12 minutes from hospital
- O_2 applied by fire service prior to ALS responding
- Pt spinal immobilized with an 18 gauge IV started on scene. Breath sounds were diminished on L with pain on palpation.
- Initial report - Elderly male with chest pain & dyspnea after MVC with12-16 inches of intrusion on passenger side with deformity R arm & pain L upper abdomen
- PMH - A-Fib & HTN on Coumadin & Beta Blocker
- At 3 minutes out, BP 142/98 HR 72 RR 26 O2 sat 96% on NRB with GCS 15

Prehospital

- What was done right?
- What could have been done better?
- What should have been done?

Emergency Department

- Trauma Team level II activated on prehospital report
- BP 150/88 HR 74 RR 30 O2 sat 96% on NRB-100%
- Physician in-room on patient arrival
- CT/X-ray all arrive 1 minute after patient arrival
- Lab arrives 9 minutes after arrival (after 2nd call)

Primary Survey

- Airway
  - Clear
- Breathing
  - RR 30 with breath sounds decreased on L
  - O2 sat 95% on NRB, pale, pain with breathing & trachea midline
- Circulation
  - No active bleeding noted HR 74, BP 140/86
- Disability
  - GCS (E4 M5 V6) = 15 Pupils 3mm = & brisk

Primary Survey Continued

- 5 minutes after arrival - BP 128/76, HR 70, with RR 30 & O_2 sat 93% on NRB
- Physician orders CXR / Lab / CT
- Portable CXR shows multiple rib fractures & large L hemo/pneumothorax
- Pt taken to CT as X-Ray leaving room c/o increasing SOB with BP 130/74, HR 72, RR 34, O_2 92% on NRB
- Chest CT reveals a large hemopneumothorax w/ flail segment. Head and neck, abdomen CTs negative.
- Pt was prepped for an immediate chest tube on return from CT with 600 cc blood out on placement.

Hospital

- INR reported as 2.4
- BP 104/74, HR 74, RR 26
- TS arrives 50 minutes after being called & writes orders to admit to floor with ED RN questioning floor admission
- Pt transferred from floor to ICU 1 hour after admission
- Pt required intubation for respiratory distress, 4 units PRBCs & 2 units FFP for acute blood loss anemia
- Patient remained intubated for 6 days, ICU LOS 10 days, hospital LOS 13 days, & discharged to SNF

Primary Survey

- What was done right?
- What could have been done better?
- What should have been done?

Chest Injuries

- At what point can you go to CT?
- What lab tests should be done?
- Is this pt at risk for shock? Why?
- What are we missing?
- Did we call the right level of activation?

- Signs: dyspnea, tachypnea, decreased or absent breath sounds, subQ emphysema, tachycardia
- Equipment needed for thoracostomy: chest tube insertion kit, chest tube 32-36, 0 silk suture, sterile gloves, suction, collection unit, sterile towels

Patient Summary

- ALS transport
- Use of Beta-Blocker gave false impression of stability
- Coumadin increased likelihood of bleeding
- Early Level II TTA allowed ED physician and X-Ray/CT to arrive early but pt met criteria for Level I activation
- No FAST exam performed which may have identified the hemo/pneumothorax earlier
- Other Performance Improvement & Patient Safety:
  - Transfer from floor to ICU
  - Should have originally been admitted to ICU
  - Chest tube prior to CT
  - Undertriage

Breathing Summary

- If not intubated, the multi-trauma patient should have oxygen delivered by a mask-reservoir device to achieve optimal oxygenation
- Before moving to circulation life-threatening compromises in breathing MUST be addressed
- Assessment of breathing includes, but is not limited to:
  - Rate/pattern of breathing
  - Skin color
  - Breath sounds
  - Rise/fall of chest
  - Tracheal position
  - Oxygen saturation